English

HCA-8300

STEREO CONTROL AMPLIFIER

INSTRUCTION MANUAL

Congratulations!
Hitachi Audio Component Products are the proud result of Hitachi engineering research and development and over 50 years of experience in electronics. Laboratories and major testing facilities are maintained in Tokyo and Toyokawa (Japan).
In choosing this fine Hitachi audio component product you have demonstrated an acute awareness of "getting the most for your money". With Hitachi products this is not an idle boast.

KEY TO ILLUSTRATIONS

① POWER switch
② PHONES jack
③ PHONES LEVEL control
④ LOW FILTER switch
⑤ HIGH FILTER switch
⑥ MODE switch
⑦ BALANCE control
⑧ GAIN SELECT switches
⑨ LOUDNESS switch
⑩ Pilot lamp
⑪ BASS control
⑫ TURNOVER switch (BASS, TREBLE)
⑬ TONE switch
⑭ TREBLE control
⑮ TAPE COPY switch
⑯ TAPE MONITOR switch
⑰ FUNCTION switch
⑱ PHONO-1 LEVEL control
⑲ LEVEL ATTENUATOR volume control
⑳ Ground terminal (GND)
㉑ PHONO 1 input terminals
㉒ PHONO 2 input terminals
㉓ TUNER input terminals
㉔ AUX 1 input terminals
㉕ AUX 2 input terminals
㉖ TAPE 1 PLAY terminals
㉗ TAPE 1 REC terminals
㉘ TAPE 2 PLAY terminals
㉙ TAPE 2 REC terminals
㉚ TAPE 2 DIN REC/PLAY socket
㉛ OUTPUT terminals
㉜ AC outlet (for U.S.A. & Canada set only)
㉝ Power supply cord

INSTALLATION

When installing the HCA-8300 choose a place that satisfies the following conditions.
1. A place out of direct sunlight and away from stoves, etc.
2. A place where ventilation is good and which is free from moisture and dust.
3. Install on a stable and vibration-free surface.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

FEATURES

1. ICL Equalizer Circuit for High-Fidelity Record Reproduction
The equalizer circuit features a 3-stage, direct-coupled 7-transistor circuit (differential FET for first stage, PNP differential transistor, constant current drive NPN transistor) for a low distortion and a high S/N ratio, as well as for high stability. There are no coupling capacitors in the input stage with the ICL (input capacitor-less) system, while the output stage employs metalized polyester film capacitors which are non-inductive and which feature a superior high-frequency response. These features improve the frequency characteristics and the phase characteristics.

2. RIAA Elements with ±1% Tolerance Parts
The RIAA elements employ metal-film resistors and styrol capacitors with a ±1% tolerance. These parts are based on MIL standards and display outstanding temperature characteristics. The RIAA deviation across a 20 Hz – 20 kHz frequency band is designed to be less than ±0.2 dB.

3. Low-Distortion, Low-Noise Tone Control Circuit
This is a 3-stage, direct-coupled 6-transistor circuit (differential FET for first stage, constant current drive PNP transistor push-pull) which not only makes for low distortion and a high S/N ratio, but also provides high stability.

4. Tone Controls for Each Channel with New Tone Control Circuit
The HCA-8300 adopts a new tone defeat control between the bass and treble controls. Furthermore, any deviations in the perfect tone balance between the left and right channels, caused by the positioning of the speakers, for example, can be compensated for.

5. Low Filter that Neatly Cuts off Wow and Ultra-low Frequency Rumble Without Impairing Sound Quality
The low filter can cut off wow and rumble in the ultra-low frequencies (20 Hz, 12 dB/oct.) without impairing the quality of the reproduced sound.

6. Headphone Amplifier Circuit for Quick and Easy Monitoring
The HCA-8300 contains a headphone amplifier which employs the latest monolithic ICs. There is also a headphone level control which can be used to adjust the headphone level of input signals, and so you can adjust the headphone's volume level separately.

7. New 32-Contact, 4-Gang Attenuator Volume Control for Accurate Level Control and High S/N Ratio
This volume control can be precisely set in 2 dB steps from 0 to -30 dB and in 3 dB steps from -30 dB to -75 dB for accurate attenuation and minimal deviation between the left and right channels. It also improves the S/N ratio when the volume is turned down with the 4-gang control.

8. Independent 3-Stage Adding Gain Selector for Extended Fine Setting Range
The -5 dB, -10 dB and -20 dB gain selectors each feature an independent adding system and so 7 different attenuation variations can be obtained between -5 dB and -35 dB, permitting use over a wide range. Also, the combination of the attenuator volume control and the loudness switch makes for an ideal loudness response, and it serves for presetting, too.

9. PHONO-1 Level Control Can Be Finely Adjusted
The HCA-8300 comes with a PHONO-1 input sensitivity level control and so it can be used in combination with the output of the cartridge. Moreover, it can be used together with PHONO-2 to compare the sound from cartridges.

10. Built-in Muting Circuit With Reed Relays
The muting circuit is actuated for about 5 seconds through the reed relays so as to suppress shock noise when the amplifier is switched on.

11. Rear Panel Terminals for Easy Connections
The panel containing the terminals at the rear slopes so that it is easy to connect lead wires from the front.

12. Excellent Operability, Sophisticated Design
All the switches and the controls are designed and positioned in keeping with the principles of human engineering for optimal operational ease. The amplifier's exterior is appealingly solid and sophisticated. Hitachi has managed to make the operation of the 32-contact attenuator volume control and all the other front panel switches and controls not only easy but also accurate.

Important for U.K.:
WARNING: This apparatus must be earthed.
The wires in this mains lead are coloured in accordance with the following code:

Green and Yellow	: EARTH
Blue	: NEUTRAL
Brown	: LIVE

As the colours of the wires in the mains lead of this apparatus may not correspond with the coloured markings identifying the terminals in your plug proceed as follows. The wire which is coloured GREEN and YELLOW must be connected to the terminal in the plug which is marked by the letter E or by the safety earth symbol ⏚ or coloured GREEN or GREEN and YELLOW.
The wire which is coloured BLUE must be connected to the terminal which is marked with the letter N or coloured BLACK.
The wire which is coloured BROWN must be connected to the terminal which is marked with the letter L or coloured RED.

CONTROLS AND SWITCHES

① POWER switch
When this switch is set to ON, power is supplied to the amplifier and the pilot lamp ⑩ lights up. There is a built-in muting circuit so that the relays are actuated about 5 seconds after the power has been switched on. Then the amplifier starts normal operation.

② PHONES jack
Headphones can be used. (The most suitable headphone is of 8 — 16 ohms impedance.)

③ PHONES LEVEL control
This is used to control the output level of the headphones. When you want to listen through the headphones, first set the LEVEL ATTENUATOR volume control ⑲ to the normal position, and then adjust the output level of the headphones with the PHONES LEVEL control ③.

④ LOW FILTER switch
When this switch is set to the 20 Hz position, low frequency noise which is generated by warps in the records is cut out. It is wise to keep this switch at the 20 Hz position since it is effective in cutting out low frequency noise outside the range of hearing which can adversely affect the speakers (12 dB/oct.).

⑤ HIGH FILTER switch
Set this switch to the 8 kHz position when you want to cut out scratch noise from records, hiss noise from tapes and high-frequency noise when listening to a broadcast. This switch is designed to cut out smoothly the treble from 8 kHz at 6 dB/oct.

⑥ MODE switch
This switch allows any of five selections.
STEREO
REVERSE . .This reverses the left and right channels.
NORMAL . .This gives a normal stereo effect.
MONO
L+R . . . . . The left and right channel signals are mixed.
L . . . . . Only the signals from the left input terminals are reproduced through the left and right speakers.
R . . . . . Only the signals from the right input terminals are reproduced through the left and right speakers.

⑦ BALANCE control
Adjusts the balance of right and left channel levels.

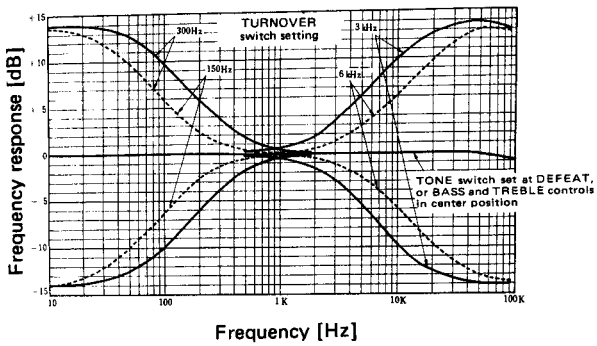
⑧ GAIN SELECT switches (-5 dB, -10 dB, -20 dB)
These gain selectors each feature an independent adding system and so 7 different attenuation variations can be obtained. You can use them with the LEVEL ATTENUATOR volume control ⑲ to set the level accurately in accordance with the performance of the speakers.
Caution:
When selecting these switches, be sure to turn the LEVEL ATTENUATOR volume control ⑲ down as low as it will go (extreme left position) and then adjust the switches, or else a high-level output power may be applied to the speakers which may damage them.

⑨ LOUDNESS switch
Due to the characteristics of human hearing, bass and treble sounds seem to drop off when the sound volume is decreased. In order to compensate for this, push this switch to ON, then the bass and treble are emphasized by +8 dB at 100 Hz and +4 dB at 10 kHz respectively.

⑩ Pilot lamp
This lights up when the POWER switch ① is set to ON.

⑪ BASS control
Operate this control after setting the TONE switch ⑬ to ON. Turning the BASS control to the right increases the bass, and turning it to the left decreases the bass. The outer knob is for the left channel, while the inner knob is for the right channel. When the TURNOVER switch (BASS) ⑫ is set to 300 Hz, you can adjust the bass ±10 dB at 100 Hz and when it is set to 150 Hz, you can adjust the bass ±10 dB at 50 Hz.

⑫ TURNOVER switches (BASS, TREBLE)
Use these switches to compensate for the acoustics of the listening room or the characteristics of the cartridge. The bass turnover frequencies are 150 Hz and 300 Hz, while the treble turnover frequencies are 1,5 kHz and 3 kHz. The control range is shown in the following figure.



⑬ TONE switch

Set this switch to ON when you want to control the tone characteristics, and then proceed with the bass and treble controls. Setting this switch to the DEFEAT position yields a flat frequency response irrespective of the BASS ⑪ and TREBLE ⑫ controls.

⑭ TREBLE control

Operate this control after setting the TONE switch ⑬ to ON. Turning this control to the right from "0" position increases the treble and conversely, turning it to the left decreases the treble.

The treble can be adjusted ±10 dB at 10 kHz when the TURNOVER switch (TREBLE) ⑫ is set to 3 kHz, and ±10 dB at 20 kHz when the same switch is set to the 6 kHz position.

⑮ TAPE COPY switch

Use this switch when you are employing two tape decks to duplicate a pre-recorded tape in one deck onto an unrecorded tape in the other deck.

COPY 1▷2 . . .You can play back the tape in the tape deck which is connected to the TAPE 1 PLAY terminals ㉖ and record on the tape in the tape deck which is connected to the TAPE 2 REC terminals ㉙ (tape copy).

SOURCE . . . .The switch is normally set to this position.

COPY 2▷1 . . .You can play back the tape in the tape deck which is connected to the TAPE 2 PLAY terminals ㉘ and record on the tape in the tape deck which is connected to the TAPE 1 REC terminals ㉗ (tape copy).

⑯ TAPE MONITOR switch

TAPE-1 position

Set this switch to TAPE-1 when playing back or record monitoring with a tape deck connected to the TAPE 1 PLAY ㉖ and REC ㉗ terminals.

TAPE-2 position

Set this switch to TAPE-2 when playing back or record monitoring with a tape deck connected to the TAPE 2 PLAY ㉘ and REC ㉙ terminals or to the TAPE 2 DIN REC/PLAY socket ㉚.

⑰ FUNCTION switch

This selects the program source.

PHONO-1 . . .For hearing a record on the turntable connected to the PHONO 1 input terminals ㉑.

PHONO-2 . . .For hearing a record on the turntable connected to the PHONO 2 input terminals ㉒.

TUNER . . . . .For listening to a broadcast on a tuner connected to the TUNER input terminals ㉓.

AUX-1 . . . . .For listening to a program source on a component connected to the AUX 1 input terminals ㉔.

AUX-2 . . . . .For listening to a program source on a component connected to the AUX 2 input terminals ㉕.

⑱ PHONO-1 LEVEL control

Use this control to vary the PHONO-1 input sensitivity level between 2 mV and 6 mV. (For further details, see page E – 5.)

⑲ LEVEL ATTENUATOR volume control

This 32-contact attenuator is used to control the volume. The rated power output is available when this control is set to the "0" position. The volume can be adjusted in 2 dB steps from 0 to -30 dB, and in 3 dB steps from -30 to -75 dB for the exact preferred level.

How to make the most effective use of the GAIN SELECT switches ⑧ and LOUDNESS switch ⑨

If the LOUDNESS switch ⑨ is depressed and the LEVEL ATTENUATOR volume control ⑲ turned, then the bass and treble responses vary, as is shown in the figure. Therefore, if you set your maximum listening volume with the GAIN SELECT switches ⑧ so that the LEVEL ATTENUATOR volume control ⑲ can be set to its maximum position (extreme right position), you can then proceed to vary the volume with the LEVEL ATTENUATOR volume control ⑲ while maintaining the optimum aural compensation.

Setting the level of the GAIN SELECT switches ⑧

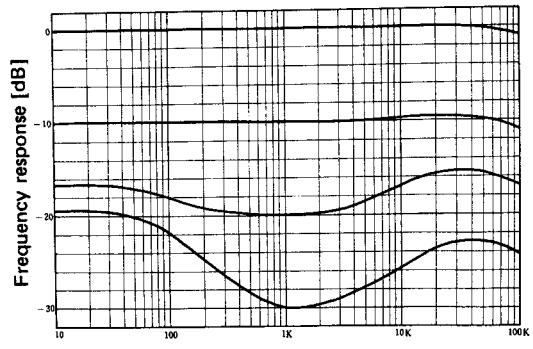
(1) Release all the GAIN SELECT switches ⑧ and the LOUDNESS switch ⑨.

(2) Set the LEVEL ATTENUATOR volume control ⑲ to your maximum listening volume.

(3) Depress the GAIN SELECT switches ⑧ with the nearest value to that of the LEVEL ATTENUATOR volume control's ⑲. (For example, say the LEVEL ATTENUATOR volume control ⑲ is set to -16 dB. The GAIN SELECT switches ⑧ feature an adding system, so all you have to do is depress the -10 dB and -5 dB selectors which give -15 dB when added together.)

(4) Depress the LOUDNESS switch ⑨.

(A 1 kHz attenuation tallies with the level indicated by the LEVEL ATTENUATOR volume control ⑲.)



Operation procedure for power switches

The HCA-8300 incorporates a muting circuit to safeguard against shock noise. Nevertheless, you can still damage your speakers if you operate the amplifier carelessly, so be sure to follow the procedure outlined below.

Switching the power on

Control amplifier's volume control	Minimum
↓	
Power amplifier's level controls	Minimum
↓	
Control amplifier's power switch	ON
↓	
Power amplifier's power switch	ON

Switching the power off

Control amplifier's volume control	Minimum
↓	
Power amplifier's level controls	Minimum
↓	
Power amplifier's power switch	OFF
↓	
Control amplifier's power switch	OFF

CONNECTING

1. Connection Between Devices

Be sure to use a thick shielded wire for connecting devices. If parallel vinyl cords or fine shielded wire is used, it may induce hum or high band characteristics might be attenuated conspicuously, so use a cord as thick and short as possible.

Caution:

Always turn the volume control right down when connecting or disconnecting the input and output cords of the audio components, and turn the power to the components off.

2. Connection of Power Amplifier

Connect the power amplifier's INPUT terminals to the HCA-8300's OUTPUT terminals ㉛.

3. Connection of Tuner

Connect the tuner's OUTPUT terminals to the HCA-8300's TUNER input terminals ㉓.

4. Connection of Turntable

Connect the turntable's OUTPUT terminals to the HCA-8300's PHONO 1 ㉑ or PHONO 2 input terminals ㉒. The input sensitivity level of the PHONO 1 input terminals ㉑ can be varied between 2 mV and 6 mV, using the HCA-8300's PHONO 1 LEVEL control ⑱. This kind of adjustment is handy for comparing cartridges. Connect a low-output cartridge turntable to the PHONO 2 input terminals ㉒ (input sensitivity level fixed at 2 mV), and a high-output cartridge turntable to the PHONO 1 input terminals ㉑. (Adjust the PHONO 1 volume so that it is equal to that of PHONO 2. Normally, the level is set to 2 mV when the PHONO 1 input terminals ㉑ only are used.)

Connect the output cords of the turntable to the terminals of the control amplifier as described below. Each connection is different depending on the kind of cartridges.

(1) Moving Magnet Cartridges

Connect the output cords of the turntable to the PHONO 1 ㉑ or PHONO 2 ㉒ input terminals.

(2) Moving Coil Cartridges

Connect to the PHONO 1 ㉑ or PHONO 2 ㉒ input terminals via a matching transformer or head amplifier.

(3) Ceramic or Crystal Cartridges

Connect to the AUX 1 ㉔ or AUX 2 ㉕ input terminals.

Note:

Be sure to connect a grounding wire from the turntable to the GND terminal ㉙ of the control amplifier as shown in the figure on the cover page. Unless the connection of a grounding wire is done, hum noise will come out from the speakers.

5. Connection of Tape Decks

Both pin-jack connections and DIN record/playback single cord connection (TAPE 2) are available. Further, since two sets of the record and playback terminals are provided, two tape deck connections are available at the same time and dubbing or duplicate recordings from one tape deck to the other can be done.

(1) Connection with DIN record/playback connector (TAPE 2 only)

Insert a DIN record/playback connector into the TAPE 2 DIN REC/PLAY socket ㉚. See the figure on the cover page.

Caution:

When using a DIN record/playback connector, remove the TAPE 2 PLAY terminals' ㉘ shorting pin plugs. Do not use the record/playback connectors and the shorting pin plugs at the same time.

(2) Connections with pin-jacks (TAPE 1, 2)

Connect the record terminals (LINE IN) of the tape deck to the TAPE 1 REC terminals ㉗ and the output terminals (LINE OUT) of the tape deck to the TAPE 1 PLAY terminals ㉖ of the HCA-8300. You can connect another tape deck in th same way mentioned above. See the figure on the cover page.

6. Use of the AUX Input Terminals (AUX 1, 2)

These terminals ㉔㉕ are a set of spare input jacks. They can be connected to cartridge tape players, television sound multiplex tuners, or other forms of signal output. The upper of the two terminals is the L (left) channel, and the lower is the R (right) channel.

7. Using the AC Outlets ㉜
(for U.S.A. and Canada sets only)

SWITCHED 50 W MAX: Insert the power plug of the tuner and tape deck or turntable connected to the HCA-8300 into these outlets. If you leave the power switches of the components connected to the HCA-8300 to the ON position, you can supply power to these components at the same time as you set the POWER switch ① of the HCA-8300 to the ON position. Setting the same power switch off also turns the power to the other components off.

UNSWITCHED 100 W MAX: You can use these outlets even if the HCA-8300's POWER switch ① is set to OFF.

LISTENING TO BROADCASTS OR RECORDS

1. When Listening to a Broadcast

(1) Check that the tuner is connected to the TUNER input terminals ㉓ on the HCA-8300's rear panel.
(2) Set the FUNCTION switch ⑰ to TUNER.
(3) Switch on the tuner and select a station.
(4) Adjust the volume using the LEVEL ATTENUATOR volume control ⑲.

2. When Listening to Records

(1) Check that the turntable is connected to the PHONO 1 ㉑ or PHONO 2 ㉒ input terminals.
(2) Set the FUNCTION switch ⑰ to the PHONO-1 or PHONO-2 position in accordance with the PHONO input terminals to which the turntable is connected.
(3) Switch on the turntable and start listening to the record. Set the LOW FILTER switch ④ to 20 Hz.
(4) Adjust the volume using the LEVEL ATTENUATOR volume control ⑲.

Caution:
Be careful not to make the turntable vibrate while a record is playing. Vibrations cause the stylus to jump and scratch the record.

3. Playback Using AUX Input Terminals (AUX 1, 2)

When playing back on audio components connected to AUX 1 ㉔ or AUX 2 ㉕ input terminals, set the FUNCTION switch ⑰ to the appropriate AUX terminal position (AUX-1 or AUX-2, according to which terminal the component is connected to). Then, adjust the volume, using the LEVEL ATTENUATOR volume control ⑲.

4. Stereo Balance

If the volume of the left and right speakers differs during stereo reproduction, the stereo effect (depth and movement of the sound) will be impaired.
The stereo balance can be affected by differences in the efficiency of the speakers and by the positioning of the furniture in the listening room.
For the most accurate way of obtaining the stereo balance, first set the MODE switch ⑥ to MONO (L, R or L+R), and then adjust the BALANCE control ⑦ so that the sound appears to come from between the speakers. When you have obtained the correct balance at your normal listening position, return the MODE switch ⑥ to STEREO-NORMAL.

USING TAPE DECKS

The HCA-8300 has two groups of tape terminals and so you can connect two tape decks for recording and playback.
Not only can you use two decks to record simultaneously, but you can also dub from one tape onto another. Also, you can play back the tape on one deck while recording a program source (AM, FM broadcast, record) on the other deck, with the FUNCTION switch ⑰ set to that source.

Playback

1. Connect the tape deck to the TAPE 1 PLAY ㉖ or TAPE 2 PLAY ㉘ terminals on the HCA-8300's rear panel, and then set the TAPE MONITOR switch ⑯ to TAPE-1 or TAPE-2, whichever is appropriate.
2. Switch the tape deck on and play back the tape.
3. Adjust the volume to the preferred level, using the LEVEL ATTENUATOR volume control ⑲.

Caution:
You do not have to worry about the FUNCTION switch ⑰ setting with tape playback.

Recording

Recording with one tape deck

1. Check that the tape deck is connected to the TAPE 1 REC ㉗ or TAPE 2 REC ㉙ terminals on the HCA-8300's rear panel.
2. Set the FUNCTION switch ⑰ to the appropriate position (PHONO-1, PHONO-2, TUNER, AUX-1 or AUX-2), in accordance with the program source.
3. Set the TAPE MONITOR switch ⑯ to SOURCE.
4. Switch on the tape deck and start recording.
5. When monitoring the recording, set the TAPE MONITOR switch ⑯ to TAPE-1 or TAPE-2, in accordance with the terminals to which the deck is connected.
   Adjust the sound level from the speakers, using the LEVEL ATTENUATOR volume control ⑲. When you are not monitoring the recording, set this control to the ∞ (extreme left) position.
6. Use the level controls on the tape deck to adjust the recording level. When you are recording, the HCA-8300's LEVEL ATTENUATOR volume control ⑲, BASS control ⑪ and TREBLE control ⑭ have no effect on the sound being recorded.

Simultaneous recording with two decks

1. Check that the two decks are connected to the TAPE 1 REC ㉗ and TAPE 2 REC ㉙ terminals.
2. Set the FUNCTION switch ⑰ to the PHONO-1, PHONO-2, TUNER or AUX position, in accordance with the program source.
3. Set the TAPE MONITOR switch ⑯ to SOURCE and the sound of the program source which is being recorded (on both decks) will be reproduced through the speakers.
4. If the TAPE MONITOR switch ⑯ is set to TAPE-1, you will be able to monitor the recording of the tape deck which is connected to the TAPE 1 REC terminals ㉗. The sound from the program source will still be recorded on the tape deck which is connected to the TAPE 2 REC terminals ㉙.
5. If the TAPE MONITOR switch ⑯ is set to TAPE-2, you will be able to monitor the recording of the tape deck which is connected to the TAPE 2 REC terminals ㉙. The sound from the program source will still be recorded on the tape deck which is connected to the TAPE 1 REC terminals ㉗.
6. Use the level controls on each of the decks to adjust the recording level.

Tape Monitoring

If you have connected a 3-head (erase/record/playback) tape deck to the HCA-8300, you can instantly compare the sound you are about to record and the recorded sound if you flip the TAPE MONI-

TOR switch ⑯ between the SOURCE and TAPE-1 or TAPE-2 settings. This means that you can check the quality of the recording, and the process is called "tape monitoring".

If the TAPE MONITOR switch ⑯ is set to SOURCE, the sound you are about to record will be reproduced through the speakers. If you then select the TAPE-1 or TAPE-2 position, the sound which has just been recorded is reproduced through the speakers and so you can check the quality of the recording by monitoring the sound.

Caution:

When monitoring your recording, you must connect both the recording and playback cords.

Tape Dubbing

By using two tape decks, you can dub the sound of a pre-recorded tape onto another tape. Simply set the TAPE COPY switch ⑮ to the appropriate position, and you will then be able to dub from TAPE-1 to TAPE-2, or from TAPE-2 to TAPE-1.

1. Connect the two tape decks as shown in Fig. 1 on the cover page.
2. Set the TAPE COPY switch ⑮ to 1▷2 or 2▷1. Then play back the pre-recorded tape on one of the two tape decks and record on the other.
3. If you want to monitor the recording of the pre-recorded tape or the sound of the dubbed tape, set the TAPE MONITOR switch ⑯ to TAPE-1 or TAPE-2.

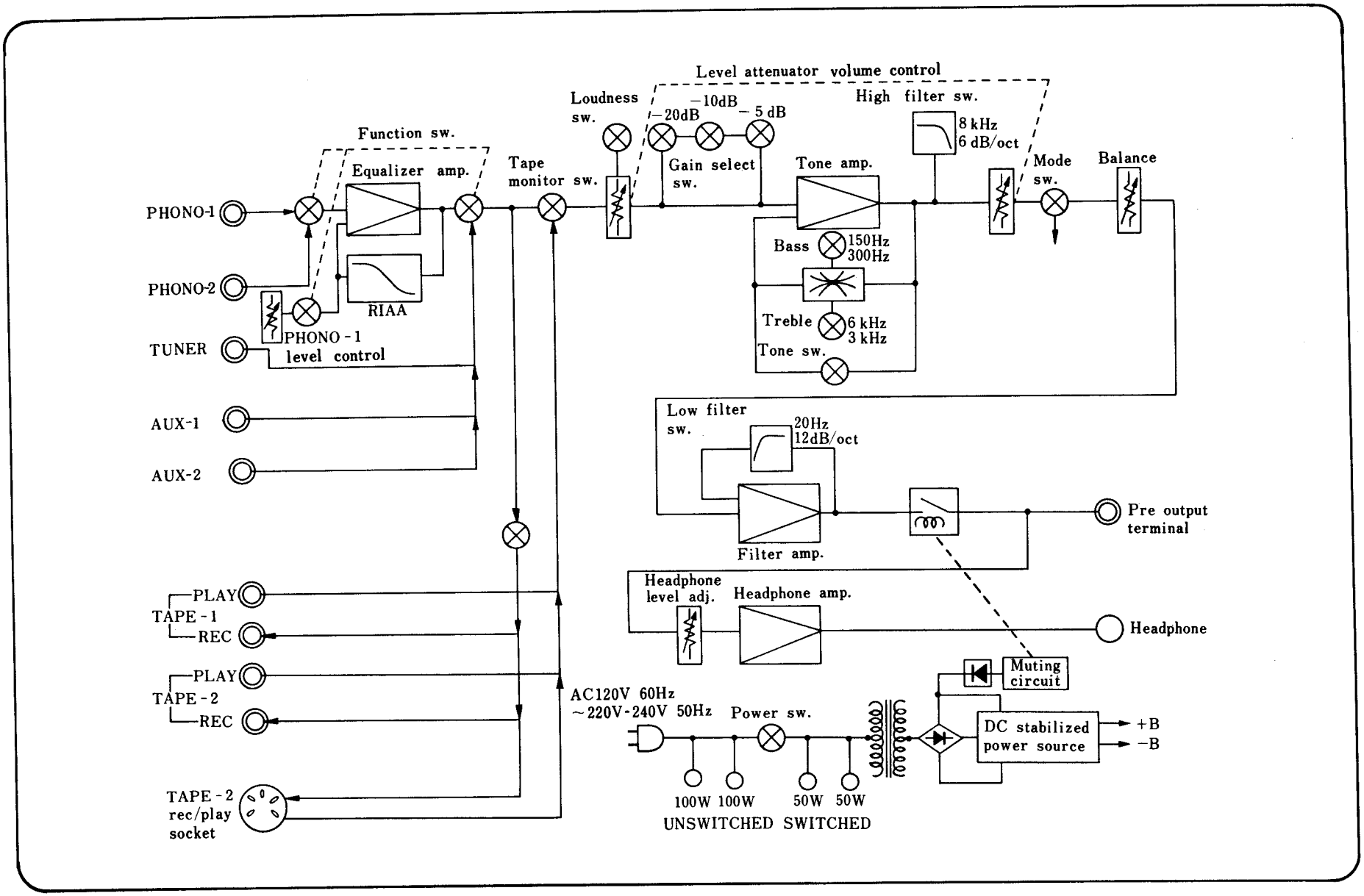
Recording an FM Broadcast or Record on One Deck While Playing Back a Tape on the Other

1. Connect the two tape decks as shown in Fig. 1 on the cover page.
2. Set the FUNCTION switch ⑰ to PHONO-1, PHONO-2, TUNER, AUX-1 or AUX-2, in accordance with the program source you are going to record.
3. Set the TAPE MONITOR switch ⑯ to TAPE-1 or TAPE-2, depending on which terminals (TAPE 1 or TAPE 2) the playback tape is connected to.
4. Switch on the playback tape deck and start to play back the tape.
5. Adjust the volume to the preferred level using the LEVEL ATTENUATOR volume control ⑲.
6. Switch on the recording tape deck and start recording. Use the tape deck's level controls to adjust the level of the recording.

SPECIFICATIONS

Preamplifier	
Input sensitivity (Impedance)	PHONO 1: 2 mV – 6 mV (50 k ohms) PHONO 2: 2 mV (50 k ohms) TUNER/AUX 1, 2: 100 mV (50 k ohms) TAPE 1, 2: 100 mV (50 k ohms)
Overload level (T.H.D. 0.1%)	PHONO 1: 40 mV – 120 mV (20 Hz) 400 mV – 1,200 mV (1 kHz) 2,000 mV – 5,500 mV (10 kHz) PHONO 2: 40 mV (20 Hz) 400 mV (1 kHz) 2,000 mV (10 kHz) TUNER/AUX 1, 2: More than 10 V TAPE 1, 2: More than 10 V
Output level (Impedance)	PRE OUT: 1 V (600 ohms) TAPE REC OUT: 100 mV (600 ohms) TAPE REC OUT (DIN): 40 mV (80 k ohms) PHONES OUT: 70 mV (90 ohms)
Max. output level	PRE OUT: More than 7 V REC OUT: 20 V
Frequency characteristics	PHONO 1, 2 (RIAA): 20 – 20,000 Hz (±0.2 dB) TUNER/AUX 1, 2: 5 – 100,000 Hz ($^{+0}_{-1}$ dB)
Signal-to-noise ratio (IHF, short-circuited, A network)	PHONO 1, 2: 75 dB (input level 2 mV) TUNER/AUX 1, 2: 100 dB (input level 100 mV) TAPE 1, 2: 100 dB (input level 100 mV)
Residual hum and noise	PRE OUT: 8 μV PHONES: 40 μV (8 ohms)
Harmonic distortion	PHONO 1,2: Less than 0.005% at REC OUT level 1 V Less than 0.01% at REC OUT level 20 V TUNER/AUX 1, 2: Less than 0.005% at PRE OUT level 1 V Less than 0.01% at PRE OUT level 7 V
Tone control	BASS: ±10 dB (50 Hz, 100 Hz turnover at 150 Hz, 300 Hz) TREBLE: ±10 dB (10 kHz, 20 kHz turnover at 3 kHz, 6 kHz)
Filter	LOW: 20 Hz (12 dB/oct.) HIGH: 8 kHz (6 dB/oct.)
Loudness control (Volume control set at -30 dB position)	+8 dB (100 Hz) +4 dB (10 kHz)
Gain selector	-5, -10, -20 dB (addition type)
Semi-conductors	8 FETs, 2 ICs, 26 transistors and 16 diodes
Power supply	AC 120 V, ~ 220 – 240 V, 50/60 Hz
Power consumption	9.5 W (AC 120 V), 11 W (~ 220 – 240 V)
Dimensions	435 (W) x 152 (H) x 308 (D) mm 17-1/8 (W) x 6 (H) x 12-1/8 (D) in.
Weight	7 kg 15.4 lbs.

Specifications and designs may be changed without notice for improvement.



Printed in Japan(H)

de capuchons anti-poussière qui conservent
les terminaux propres et nonpoussiéreux.
Enlevez ces capuchons quand vous utilisez

Measuring Equipment
Audio Osc. : MODEL 4494A
AC Voltmeter : MODEL 3400A
Distortion Meter : MODEL 4333A

Meßgeräte
Tonfrequenzgenerator : Modell 4494A
Wechselstrom-Voltmeter : Modell 3400A
Klirrfaktormesser : Modell 4333A

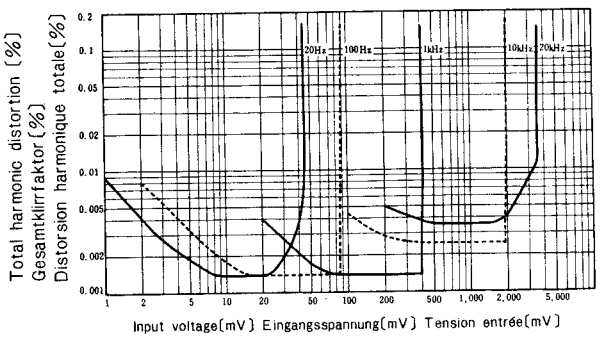
Equipement de mesure
Générateur à basse fréquence : Modèle 4494A
Voltmètre CA : Modèle 3400A
Appareil de mesure : Modèle 4333A

Phono Input vs. Distortion Rate Characteristics
Plattenspielereingang im Vergleich zum Gesamtklirrfaktor
Courbes caractéristiques de l'entrée phono sur le taux de distorsion

Input : PHONO I terminal
Output : REC terminal

Eingang : Plattenspielerbuchse (PHONO I)
Ausgang : Aufnahmebuchse (REC)

Entrée : Bornes PHONO I
Sortie : Bornes REC

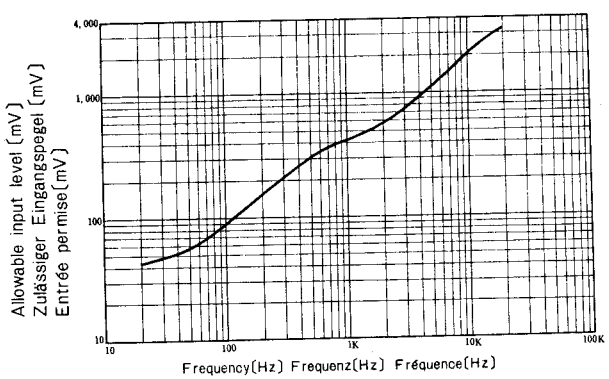


Equalizer Allowable Input Characteristic
Zulässiger Eingangspegel des Entzerrers
Courbe caractéristique d'entrée permise du compensateur

Input : PHONO I terminal (level 2mV)
Output : REC terminal
Distortion rate : 0.01% constant

Eingang : Plattenspielerbuchse I (PHONO I) (Pegel 2mV)
Ausgang : Aufnahmebuchse (REC)
Gesamtklirrfaktor : 0,01% konstant

Entrée : Bornes PHONO I (niveau 2mV)
Sortie : Bornes REC
Taux de distorsion : 0,01% constant

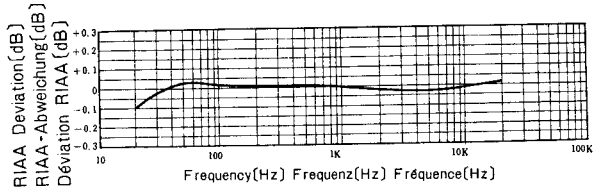


RIAA Deviation
RIAA-Abweichung
Courbe caractéristique du déviation RIAA

Input : PHONO I terminal (level 2mV)
Output : REC terminal

Eingang : Plattenspielerbuchse I (PHONO I) (Pegel 2mV)
Ausgang : Aufnahmebuchse (REC)

Entrée : Bornes PHONO I (niveau 2mV)
Sortie : Bornes REC

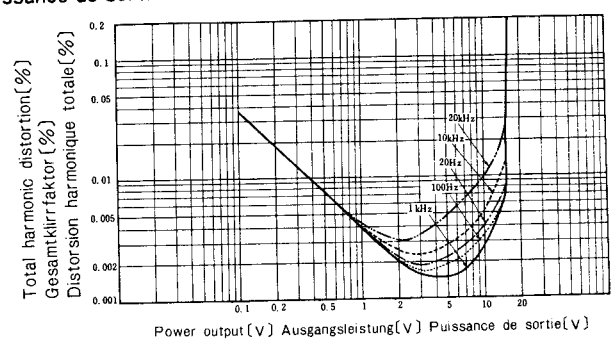


Output vs. Distortion Rate Characteristics
Ausgangsleistung im Vergleich zum Gesamtklirrfaktor
Courbes caractéristiques de la puissance de sortie sur le taux de distorsion

Input : TUNER terminal
Output : OUTPUT terminal

Eingang : TUNER-Buchse
Ausgang : Ausgangsbuchse (OUTPUT)

Entrée : Bornes TUNER
Sortie : Bornes OUTPUT

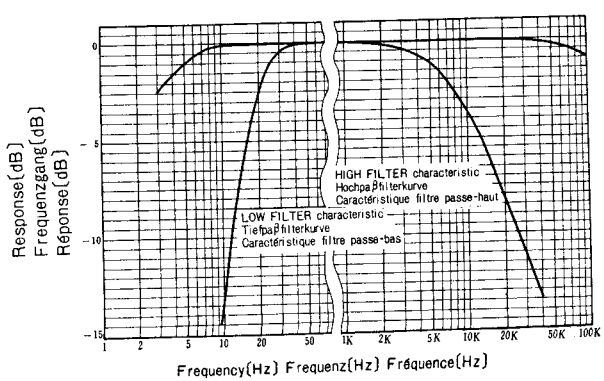


Frequency Characteristics
Frequenzgang
Réponse en fréquence

Input : TUNER terminal
Output : OUTPUT terminal
0 dB : 0.775V

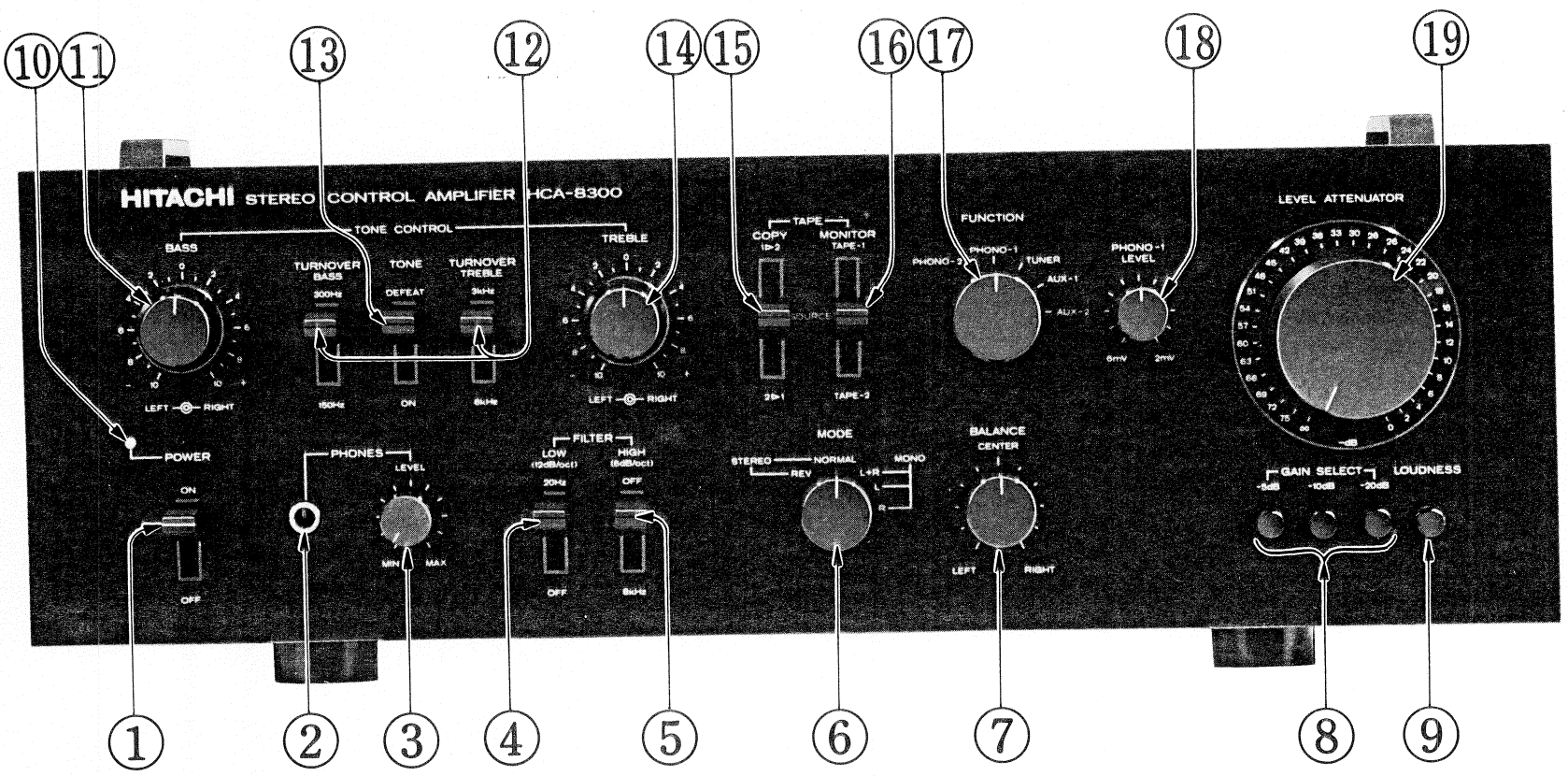
Eingang : TUNER-Buchse
Ausgang : Ausgangsbuchse (OUTPUT)
0 dB : 0, 775V

Entrée : Bornes TUNER
Sortie : Bornes OUTPUT
0 dB : 0,775V



HCA-8300

HITACHI



Connect the HCA-8300's power plug after you have finished all the connections.

Nachdem alle Anschlüsse vorgenommen wurden, den HCA-8300 ans Netzanschließen.

Ne raccorder la prise d'alimentation du HCA-8300 que lorsque vous aurez achevé toutes les connexions.

Dust-proof cap : All the input terminals except the TAPE 1 and 2 PLAY terminals ㉖ ㉘ are equipped with dust-proof caps the terminals clear of dust. Remove the caps when you use the terminals.

Staubdichte Kappe : Sämtliche Eingangsbuchsen, außer den Eingängen für Tonbandgerät 1 und 2 ㉖ ㉘ sind mit staubdichten Kappen ausgestattet, die ein Eindringen von Staub verhindern.

Capuchon anti-poussière : Tous les bornes d'entrée sauf les bornes de reproduction de bande 1 ㉖ et de bande 2 ㉘ sont équipes de capuchons anti-poussière qui conservent les terminaux propres et nonpoussiéreux. Enlevez ces capuchons quand vous utilisez les terminaux.

AC outlets ㉜ : The HCA-8300 has two SWITCHED 50 W MAX and two UNSWITCHED 100 W MAX outlets.

Wechselstromausgänge : Der HCA-8300 verfügt über zwei abschaltbare (SWITCHED 50 W MAX) und zwei nicht abschaltbare (UNSWITCHED 100 W MAX) Netzsteckdosen.

Sorties CA ㉜ : Le HCA-8300 est équipé de deux prises commutables de 50 W maximum et de deux prises non commutables de 100 W maximum.

Always use a household AC outlet as the power amplifier's power source.

Als Stromquelle des Endverstärkers stets eine Netzsteckdose verwenden.

Utiliser toujours une prise de courant CA domestique comme source d'alimentation de l'amplificateur de puissance.

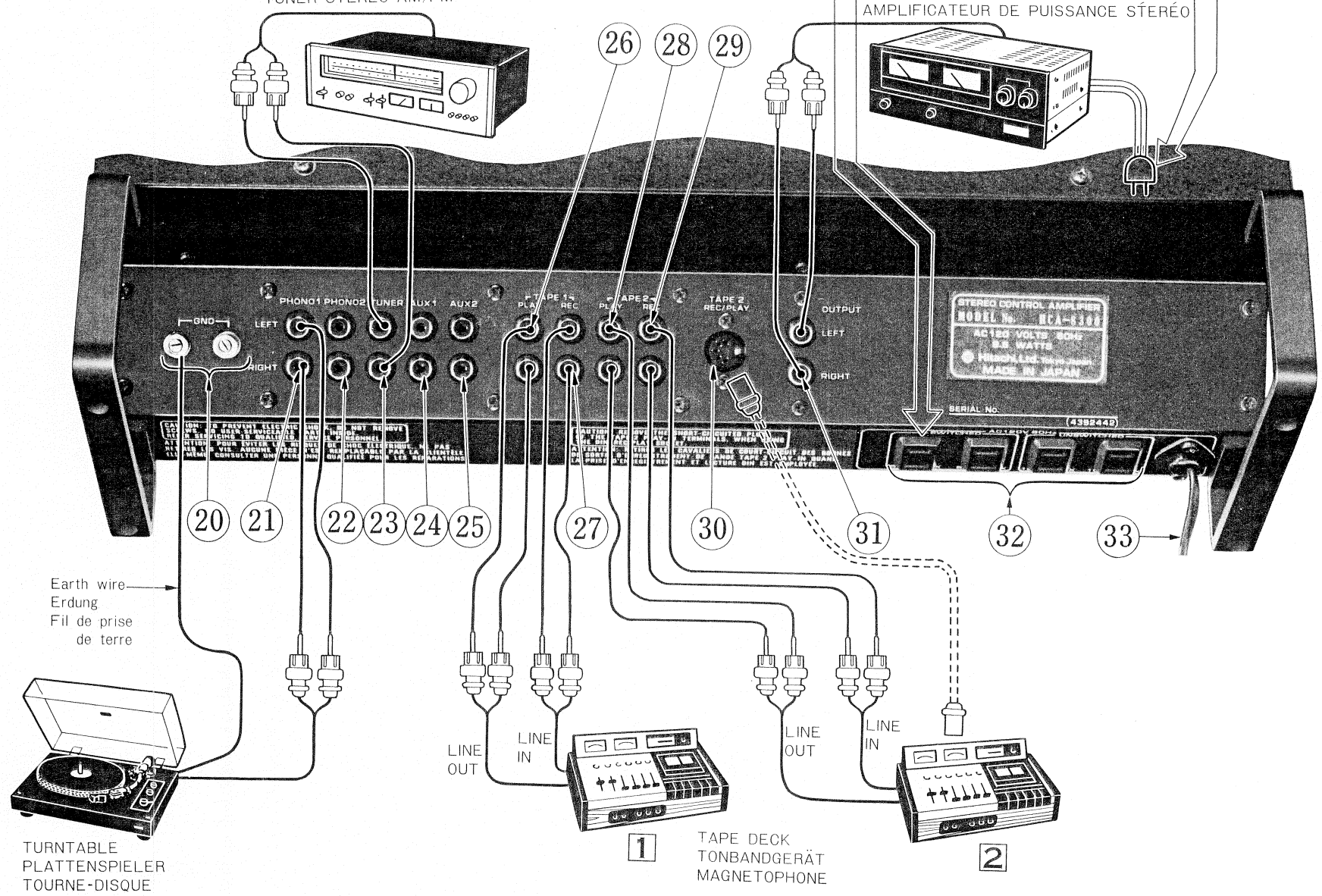
TAPE 1 and 2 PLAY terminals ㉖ ㉘ are provided with shorting pin plugs. Remove all the plugs when using all the terminals and the plugs belonging to TAPE 2 PLAY terminals ㉘ when using DIN record/playback connectors.

Die Eingänge für Tonbandgerät 2 ㉖ ㉘ sind mit Kurzschlußstiftsteckern ausgestattet. Bei Verwendung sämtlicher Buchsen alle Stecker entfernen, und bei Verwendung der DIN-Normbuchse für Aufnahme/Wiedergabe die zum Eingang für Tonbandgeät 2 ㉘ gehörenden Stecker herausziehen.

Les bornes de reproduction de bande 1 ㉖ et de bande 2 ㉘ sont munis de fiches de mise en court-circuit. Enlever toutes les fiches quand vous utilisez tous les bornes et les fiches des bornes de reproduction de bande 2 ㉘ quand on utilise des fiches DIN d'enregistrement reproduction

de deux prises commutables de 50 W maximum et de deux prises non commutables de 100 W maximum.

Capuchon anti-poussière : Tous les bornes d'entrée sauf les bornes de reproduction de bande 1 ㉖ et de bande 2 ㉘ sont équipés de capuchons anti-poussière qui conservent les terminaux propres et nonpoussiéreux. Enlevez ces capuchons quand vous utilisez les terminaux.



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Les bornes de reproduction de bande 1 ㉖ et de bande 2 ㉘ sont munis de fiches de mise en court-circuit. Enlever toutes les fiches quand vous utilisez tous les bornes et les fiches des bornes de reproduction de bande 2 ㉘ quand on utilise des fiches DIN d'enregistrement reproduction.

The TAPE 1 terminals are of the pin-jack type, and TAPE 2 terminals are of the pin-jack and DIN REC/PLAY socket type. There is no difference whether an open-reel or cassette tape deck is used.

Bei den Tonbandbuchsen 1 (TAPE 1) handelt es sich um Buchsen für Klinkenstecker und bei den Tonbandbuchsen 2 (TAPE 2) um Buchsen für Klinkenstecker und einen DIN-Anschluß für Aufnahme/Wiedergabe (DIN REC/PLAY). Es besteht kein Unterschied zwischen der Verwendung eines Spulen-oder Kassettenbandgerätes.

Les bornes TAPE 1 sont du type prise jack, et les bornes TAPE 2 sont du type fiche REC /PLAY DIN et prise jack. Il n'y a aucune différence entre l'emploi d'une platine de magnétophone à bobine et celle à cassette.

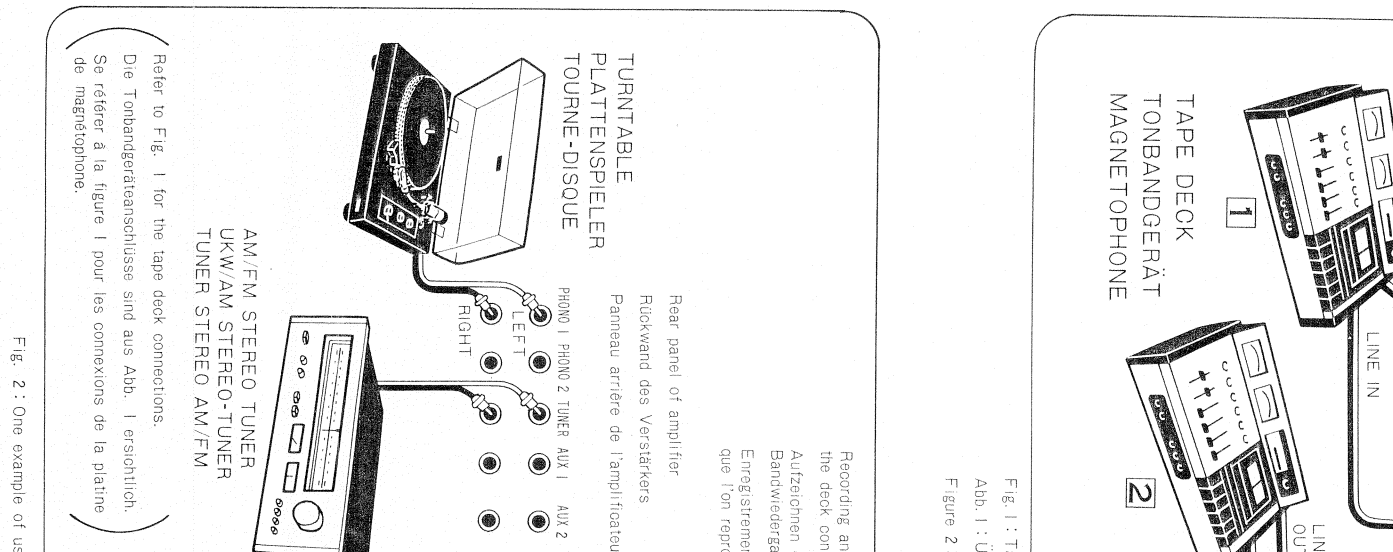

Fig. 1 : Tape dubbing

Abb. 1 : Überspielen

Figure 2 : Copiage de bande

Tape dubbing from TAPE-1 to TAPE-2. TAPE-2 monitor.

Überspielen von Tonbandgerät 1 (TAPE-1) auf Tonbandgerät 2 (TAPE-2). Hinterbandkontrolle mittels Tonbandgerät 1 (TAPE-1).

Copiage de bande de TAPE-1 à TAPE-2. Contrôle de bande TAPE-2.

Tape dubbing from TAPE-2 to TAPE-1. TAPE-1 monitor.

Überspielen von Tonbandgerät 2 (TAPE-2) auf Tonbandgerät 1 (TAPE-1). Hinterbandkontrolle mittels Tonbandgerät 1 (TAPE 1).

Copiage de bande de TAPE-2 à TAPE-1. Contrôle de bande

Recording an FM broadcast on one tape deck while playing back a tape on the deck connected to the TAPE 1 PLAY terminals ㉖.

Aufzeichnen einer UKW-Sendung mit einem Tonbandgerät, bei gleichzeitiger Bandwiedergabe vom zweiten Tonbandgerät mit Anschluß an.

Enregistrement d'une émission FM sur une platine de magnétophone pendant que l'on reproduit une bande sur la platine raccordée sur les bornes TAPE 1.

Refer to Fig. 1 for the tape deck connections.

Die Tonbandgeräteanschlüsse sind aus Abb. 1 ersichtlich.

Se référer à la figure 1 pour les connexions de la platine de magnétophone.

Recording a record on one tape deck while playing back a tape on the deck connected to the TAPE 1 PLAY terminals ㉖ (with the turntable connected to the PHONO 1 input terminals ㉑).

Aufzeichnen einer Schallplatte mit einem Tonbandgerät bei gleichzeitiger Bandwiedergabe vom zweiten Tonbandgerät mit Anschluß an (wobei der Plattenspieler an die Plattenspieler-Eingangsklemmen 1 ㉑ angeschlossen ist)

Enregistrement d'un disque sur l'une des platines de magnétophone pendant que l'on reproduit une bande sur la platine raccordée sur les bornes TAPE 1 (Avec le tourne-disque raccordé sur les bornes d'entrée PHONO 1).

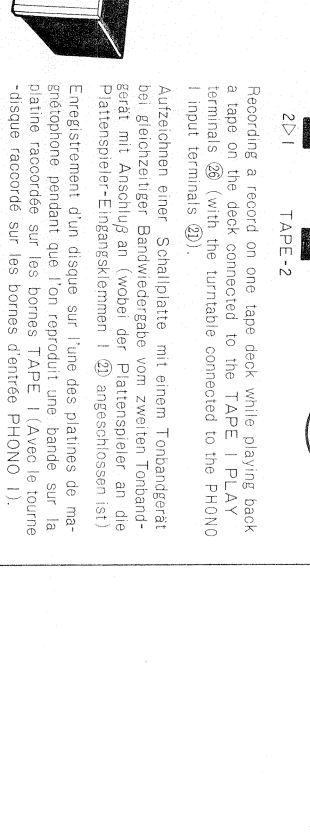

Fig. 2 : One example of using the tape terminals

Abb. 2 : Beispiel zur Verwendung der Tonbandbuchsen

Figure 2 : Un exemple d'utilisation des bornes de bande